Performance Incentive Mechanisms & Multi-Year Rate Plans

Rhode Island

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Performance Incentive Mechanisms: Overview

Objective	• Articulate specific regulatory goals • Track performance • Incentivize improvements
Key Components	• Regulatory policy goals – identifying performance areas • Metrics – detailed information regarding utility performance • Targets – requirement to achieve specific goals • Financial incentives – based on performance relative to targets
Additional Components	• Reporting practices • Scorecards • Public reporting (websites, etc.)

Existing PIMs in Rhode Island

Metric	Purpose	Formula	Target	Incentive
Service Quality				
SAIDI	Indicate reliability in terms of duration of outages	System average interruption duration index	yes	penalty
SAIFI	Indicate reliability in terms of frequency of outages	System average interruption frequency index	yes	penalty
Customer Satisfaction	Indicate satisfaction regarding many services	Based on customer survey	yes	penalty
Call-In Center	Indicate response time	20 second call response	yes	penalty
Renewables and Distributed Energy Resources				
Electric EE	Promote efficiency use of electric EE funds	5% of program budget, depending upon energy and capacity savings	yes	yes
Gas EE	Promote efficiency use of gas EE funds	5% of program budget, depending upon gas savings	yes	yes
SRP	Promote efficient outcome of NWA initiative	5%-9% of program budget, depending upon energy & capacity savings	yes	yes
Long-Term Contracts	Promote long-term renewable contracts	2.75% of actual payment made through PPA	no	yes
DG Standard Contracts	Promote standard contracts for renewables	2.75% of actual payment made through PPA	no	yes
RE Growth: DG Facilities	Promote DG	1.75% of the annual value of all incentives issued to DG.	yes	yes
RE Growth: SolarWise	Promote SolarWise	1.75% of the annual value of all incentives issued through SolarWise	yes	yes

System Efficiency PIMs

Metric	Purpose	Formula
Customer load factor	Indicate customer demand relative to energy	Ratio of distribution sales during peak hours to distribution sales in all hours, by customer sector
Customer usage	Indicate customers' energy consumption over time	Ratio of sector sales to sector number of customers
System losses	Indicate losses on distribution system	Ratio of total electricity losses to total distribution sales
Transmission peak demand	Indicate the extent to which peak demand affects transmission costs	Rhode Island's monthly contribution to the ISO coincident peak
Distribution peak demand	Indicate the magnitude of distribution peak demand	Monthly peak distribution demand, by sectors
Substation peak demand	Indicate the extent to which specific substations are stressed	Percent of capacity utilized on targeted substations, during distribution monthly peaks
Beneficial Electrification	Indicate the implementation of electric vehicles and efficiency heat pumps	To be determined

Distributed Energy Resources

Metric	Purpose	Formula
Energy efficiency	Indicate participation, savings, and cost effectiveness of EE programs	Percent of customers served, annual & cumulative
		Energy savings, annual and lifecycle
		Capacity savings, annual and lifecycle
		Program costs per energy saved ($/MWh)
Demand response	Indicate participation, savings, and cost effectiveness of DR programs	Percent of customers served, annual
		Capacity savings, annual and cumulative
		Program costs per capacity saved ($/kW)
Distributed generation	Indicate penetration and type of DG installations	Percent of customers with DG, annual & cum.
		DG installed capacity
		DG capacity by type (PV, CHP, small wind, etc.)
Electricity storage	Indicate penetration of storage technologies, and ability to help mitigate peaks	Percent of customers with storage, annual & cum.
		Storage installed capacity
		Percent of customers with storage technologies enrolled in demand response programs
Electric vehicles	Indicate penetration of EVs, and ability to help mitigate peaks	Percent of customers with EVs, annual & cum
		Percent customers with EVs enrolled in DR programs
Time-varying rates	Indicate penetration of time-varying rates	Percent of customers on time-varying rates, by customer sector

Network Support Services

Metric	Purpose	Formula
Advanced metering capabilities	Indicate penetration of advanced metering functionality	Percentage of customers with AMF, by sector
		Percentage of energy served through AMF, by sector
Interconnection support	Indicate performance of DG installation and DG study	Average days for customer interconnection
		Percent difference between study cost estimate and final cost to DG developer
Customer access to customer information	Indicate customers' ability to access their usage information	Percent of customers able to access daily usage data, by sector
		Percent of customers able to access hourly or sub-hourly usage data, by sector
Third-party access to customer information	Indicate third-parties' access to customer usage information	Percent of customers able to provide data to third-parties
		Percent of customers who have authorized third-parties to access data
Third-party access to distribution information	Indicate third-parties' access to distribution system info	Targets for providing heat maps and other relevant system data
Cyber security	Indicate strength and resiliency of cyber system	To be determined
Distribution System Planning	Indicate the ability of distribution planning to provide network support	To be determined

Multi-Year Rate Plans: Overview

Objective	• Provide financial incentive for utility to increase efficiency and reduce utility costs. Reduced costs should ultimately benefit customers.
Key Components	• Rate case moratorium • Attrition relief mechanism (ARM) provides automatic relief for increasing cost pressures, but is not linked to a utility's actual costs • Performance incentive mechanisms for reliability, safety, etc.
Optional Components	• Revenue decoupling • Earnings sharing mechanism • Efficiency carryover mechanism • Cost trackers

Multi-Year Rate Plans: Issues to Address

- What financial incentives are being addressed?
- How long should the rate case moratorium last?
- Should there be an off-ramp?
- How to design the attrition relief mechanism?
  - Index based. For example: RPI-X.
  - Forecast based.
  - A hybrid.
- What costs to include in the attrition relief mechanism?
  - Expenses only (labor, O&M, etc.)
  - Expenses plus capital costs
  - TOTEX approach

Multi-Year Rate Plans: Issues to Address

- Should there be cost trackers? Which costs?
- How should capital costs be addressed?
  - In the ARM
  - In a cost tracker
  - Treat grid mod, or other distinct capital investments separately
  - To what extent are capital costs pre-approved
- Should there be an earnings sharing mechanism?
- Should there be new PIMs to prevent service degradation?
- Should there be additional PIMs to achieve specific goals?

Appendix

Incentives Under Traditional Cost of Service Regulation

Throughput Incentive	• Much of the utility's revenue requirement is generally recovered by volumetric and demand charges, which are dependent on usage. • Creates an incentive to oppose anything that decreases sales (energy efficiency, distributed energy resources), even when these technologies can meet customer needs at lower cost.
Capital Investments Incentive	• Utility earns a return based on capital investments. • Creates a financial incentive to increase rate base.
Rate Case Incentive	• Base rates are adjusted in occasional rate cases that occur as they are needed. The more financial attrition that a utility is subject to, the more frequently they will ask for rate cases. • Frequent rate cases can erode the utility's incentive to improve performance and contain costs.

Cost of Service Regulation versus PBR (simplified)

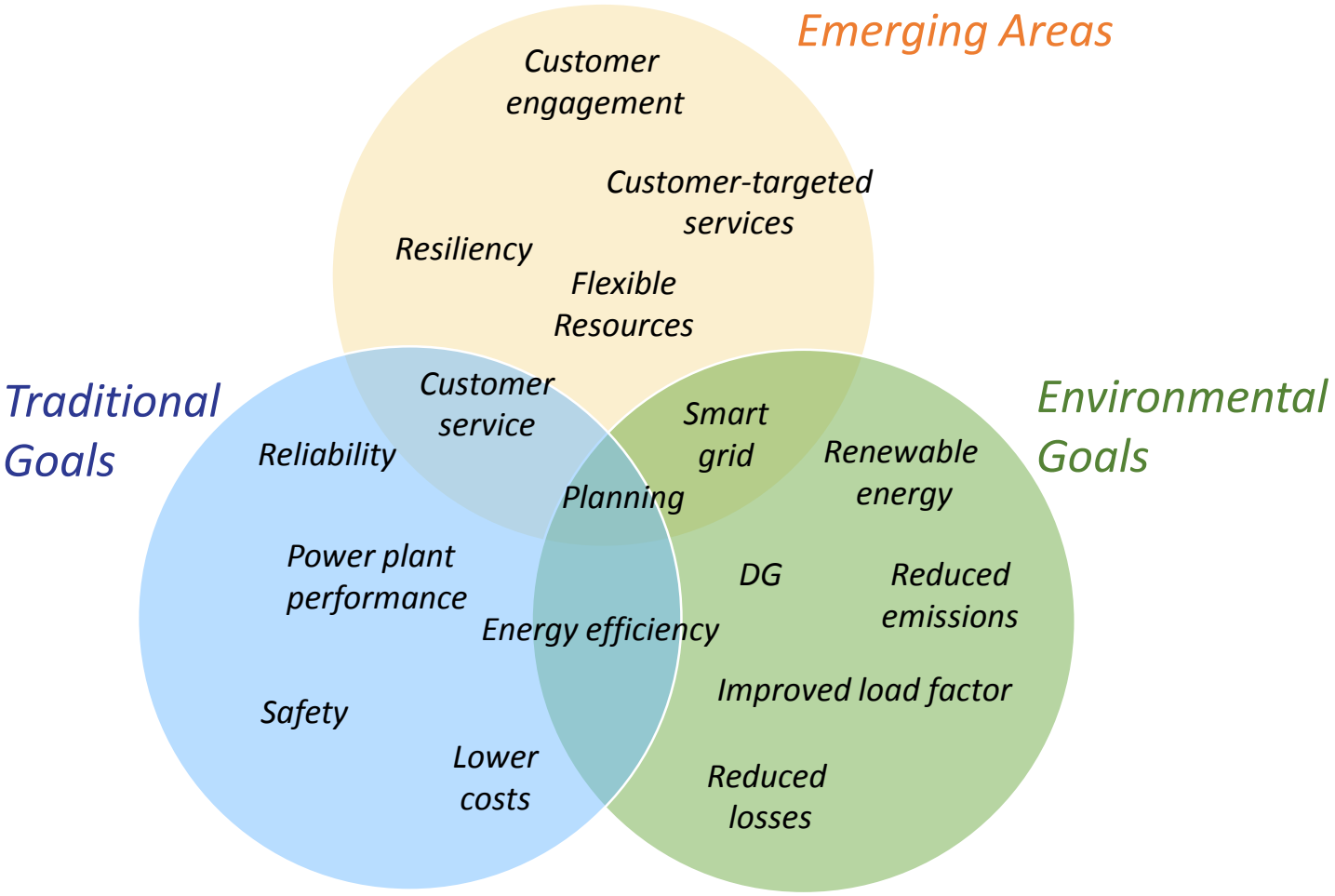
Regulatory Element	Cost of Service Regulation (COSR)	Multi-Year Rate Plans (MRPs) (The key element of PBR)
Frequency of rate cases	As needed. (Typically determined by utility.)	Pre-determined, fixed period. (For example, 5 years).
Revenue adjustments between rate cases	No adjustments to base rates. (Some revenues are reconciled through riders.)	Attrition relief mechanisms. (For example, RPI-X.)
Performance Incentive Mechanisms **(One element of PBR, but also used in COSR)**	If implemented at all, generally narrowly focused on safety, reliability, and customer service	• Traditionally focused on areas that may experience service degradation due to cost reductions • Increasingly designed to create incentives to achieve a broad set of desired outcomes.

State Goals Dictate the Most Fitting Option

Performance Improvement Goals	Openness to Regulatory Change	PBR Options
None	Low	Maintain current ratemaking practice
Improved performance in specific areas	Low	Adopt PIMs for specific areas
General improvement in utility cost performance	Moderate to high	Adopt an MRP with only traditional PIMs
Support for DERs	Low	Adopt PIMs for DER <u>or</u> decoupling
	Moderate	Adopt PIMs for DER <u>and</u> decoupling
Improved performance in specific areas **General improvement in utility cost performance** **Support for DERs**	High	Adopt PIMs for DERs, an MRP, and decoupling

PIMs – Implementation Details

1. Identify areas of performance to track



PIMs: Four Elements

Performance Areas	• System efficiency • Distributed energy resources • Network support services • Environmental goals
Metrics	• Tied to policy goals • Tied to inputs or outputs • Defined clearly, easily measured, easily interpreted • Reporting requirements
Targets	• Sources of data (historic, peer groups, other) • Realistic, stretch, or other targets • Balance the costs of the targets with the benefits
Financial Incentives	• Are financial incentives warranted • Asymmetric versus symmetric • Reasonable magnitude • Units (ROE, basis points, dollars, shared savings)

Traditional and Emerging Performance Areas

Traditional Performance Areas	Purpose
Reliability	To indicate the extent to which service is reliable and interruptions are remedied quickly
Employee Safety	To ensure that employees are not subjected to excessive risks
Public Safety	To ensure that the public is not subjected to excessive risks
Customer Satisfaction	To ensure that the utility is providing adequate levels of customer service
Plant Performance	To indicate the performance of specific generation resources
Costs	To indicate the cost of supply side resources
Emerging Performance Areas	**Purpose**
System Efficiency	To indicate the extent to which the utility system as a whole is being operated more efficiently
Customer Empowerment	To indicate the extent to which customers are participating in demand-side programs or installing demand-side resources
Network Support Services	To indicate the extent to which customers and third-party service providers have access to networks
Environmental Goals	To indicate the extent to which the utility and its customers are reducing environmental impacts, particularly related to climate change

2. Develop metrics

- Ensure the metric is tied to the policy goal and will provide useful information about whether the goal is being attained
- Define metrics precisely, using regional or national definitions where possible
  - Helps avoid contention, and facilitates comparisons over time and across jurisdictions
- Choose metrics that are easily measured and interpreted
  - Complex data analyses reduce transparency

Examples of possible metrics

Metric	Purpose	Metric Formula
System load factor	Indication of improvement in system load factor over time	System average load / peak load
Line losses	Indication of reductions in losses over time	Total electricity losses / MWh generation, excluding station use
Demand response (DR)	Indication of participation and actual deployment of DR resources	Potential and actual peak demand savings (MW)
Distributed generation (DG)	Indication of the technologies, capacity, and rate of DG installations, and whether policies are supporting DG growth	Number of customers with DG
		MW installed by type (PV, CHP, small wind, etc.)
Information availability	Indicator of customers' ability to access their usage information	Number of customers able to access daily usage data via a web portal
		Percent of customers with access to hourly or sub-hourly usage data via web
Time-varying rates	Indication of saturation of time-varying rates	Number of customers on time-varying rates

3. Set performance targets

- Balance the costs of achieving the target with the benefits to ratepayers
  - **What is the value** of achieving the target? Customer surveys can help determine value to customers (e.g., is extra reliability worth the additional cost?)
  - **What are the costs** of achieving the target? Does the utility have a budget cap on how much it can spend to achieve the target? Will costs be automatically passed on to customers?
- Set a realistic target. Various analytical techniques can help:
  - Historical performance (*if still relevant)*
  - Peer utility performance (*if inherent differences between utilities can be controlled for)*
  - Frontier methods (*measures technical efficiency of various firms*)
  - Utility-specific studies (*IRPs and engineering studies can be useful*)
- Use deadbands to mitigate uncertainty around a target

4. Set Financial Rewards and Penalties

- Symmetric vs. Asymmetric
- Ensure a reasonable magnitude for incentive
  - Large enough to capture utility management's attention
  - Should not overly reward or penalize utility
- Start with small incentives; increase only if necessary
- Use the best units:
  - ROE basis points (but can encourage maximizing rate base)
  - Avoided costs (but can vary too much)
    - Example: energy efficiency rewards tied to avoided costs of energy are volatile
  - Percent of base revenues
  - Percent of pre-tax earnings

PIMs – Potential Pitfalls

Pitfalls to Avoid

Undue rewards or penalties

- Excessive rewards (or penalties) undermine the whole concept of incentive mechanisms.

Example: Rewards Based on Avoided Market Prices

Incentives that are tied to market prices may fluctuate significantly and provide utilities with a windfall. (*E.g., Palo Verde nuclear incentives, which spiked during California's electricity crisis.)*

- *Potential solutions:*
  - Use an incremental approach: start low and monitor over time.
  - Careful PIM design (e.g., shared savings, caps on financial incentives, other safety valves).

Pitfalls to Avoid

Costs Outweigh Benefits

- Value to customers of achieving target is less than the cost (including the cost of any shareholder incentives, regulatory cost, and project costs.)
- *Potential solutions:*
  - Set a cap on the costs that can be passed on to customers.
  - Ensure benefits are realized.

Example: Advanced Metering Infrastructure Incentive

Ensure customer savings are actually realized.

Shareholder incentives **+** actual project costs **<** actual customer savings

Pitfalls to Avoid

Unintended consequences

- An incentive for one performance area may cause the utility to under-perform in areas that do not have incentives.
- *Potential solutions:*
  - Focus on performance areas that are isolated from others.
  - Be cautious of implications for other performance areas.
  - Consider implementing a diverse, balanced set of incentives.

Regulatory burden

- PIMs can be too costly, time-consuming, or too much of a distraction.
- Can be a problem for utilities, regulators, and stakeholders.
- *Potential solutions:*
  - Streamline using existing data, protocols, and simple designs.
  - Reduce the amount of money at stake.

Example: Penalties for Energy Efficiency

Some states have found that implementing penalties for energy efficiency is not worthwhile, given the contentiousness of the proceedings.

Pitfalls to Avoid

Uncertainty

- Metrics, targets, and financial consequences that are not clearly defined reduce certainty, introduce contention, and are less likely to achieve policy goals.
- *Potential solutions:*
  - Carefully specify metric and target definitions, soliciting utility and stakeholder input where possible.
  - Adjust targets and financial consequences only cautiously and gradually so as to reduce uncertainty and encourage utilities to make investments with long-term benefits.

Gaming and Manipulation

- Utilities may have an incentive to manipulate results.
- *Potential solutions:*
  - Identify verification measures.
  - Consider using independent third parties (that are not selected or paid by the utility) to collect or verify data.
  - Avoid complex data analysis techniques that are difficult to audit and reduce transparency.

Example: California's Customer Surveys

Key Take-Aways

- The goal is to improve performance cost-effectively
  - Ideally, both utility and customers should benefit
  - Cost should never outweigh value to customers
  - PIMs may be best coupled with MRPs to provide cost containment incentives
- Setting a good PIM can be difficult
  - Requires significant stakeholder engagement, discovery process, and lots of analysis
  - Good baseline data is vital
- Financial incentives might not be needed
- Better information = better results
  - A key benefit of PIMs (or metrics) is the ability to better understand what is happening on the system